

In the Claims

The status of claims in the case is as follows:

- 1 1. [Currently amended] Method for evaluating a network,
2 comprising the steps of:

3 measuring average message delay through said network;

4 determining ~~the standard deviation~~ a standard deviation
5 of said message delay; and

6 calculating ~~the discrete~~ a discrete utilization of said
7 network as ~~the ratio~~ a ratio of said average message
8 delay to said standard deviation.
- 1 2. [Original] The method of claim 1, further comprising
2 the steps of:

3 factoring instances of dropped messages as full
4 utilization in calculating said discrete utilization.
- 1 3. [Currently amended] Method for evaluating a network,
2 comprising the steps of:

communicating of a plurality of long packets and short packets through said network;

determining ~~the best time~~ a best time of said long packets;

determining ~~the best time~~ a best time of said short packets;

responsive to ~~the length~~ a length of said long and short packets and their respective best times, determining ~~network~~ Network Queue Wait Time (Tw) and ~~the standard deviation~~ a standard deviation of Network Queue Wait Time, (σTw);

responsive to said Tw and σTw , calculating ~~the discrete~~ a discrete utilization (p) of said network.

4. [Original] The method of claim 3, wherein said Tw, σTw and p are related by the expression:

$$Tw / \sigma Tw = p / \sqrt{(p * (2 - p))}$$

1 5. [Currently amended] Method for evaluating a network,
2 comprising the steps of:

3 sending test packets across said network;

4 ~~responsive to said test packets~~ based upon number of
5 test packets transmitted, number of bytes per test
6 packet, send and receive timestamps of each test
7 packet, and number of test packets lost in
8 transmission, deducing ~~the capacity~~ a capacity of said
9 network, its latency, and ~~the current~~ a current
10 utilization of said capacity.

1 6. [Currently amended] The method of claim 5, further
2 comprising the steps of:

3 calculating network hop count as a measure of ~~the~~
4 ~~minimum number~~ a minimum number of hops of network
5 bottleneck hop speed that could be in the ~~actual~~
6 network; and

7 responsive to said network hop count, determining the

8 minimum network discrete utilization.

1 7. [Currently amended] The method of claim 6, further
2 comprising the steps of:

3 responsive to said test packets, determining as a
4 maximum network discrete utilization ~~the number a~~
5 number of messages queued per network hop count; and

6 responsive to said minimum network discrete utilization
7 and said maximum network discrete utilization,
8 determining a best approximation of end to end discrete
9 utilization.

10 8. [Original] The method of claim 7, further comprising
11 the step of:

12 adjusting said end to end discrete utilization for
13 dropped test packets.

1 9. [Currently amended] The method of claim 7, said best
2 approximation of end to end discrete utilization being ~~the~~
3 average an average of said minimum network discrete
4 utilization and said maximum network discrete utilization.

1 10. [Original] The method of claim 7, further comprising
2 the step of:

3 adjusting said best approximation of end to end
4 discrete utilization by selectively weighting said
5 minimum network discrete utilization or said maximum
6 network discrete utilization responsive to network
7 streaming utilization.

1 11. [Currently amended] A method for evaluating network
2 characteristics, comprising the steps of

3 determining network discrete utilization;

4 determining average message service time; and

5 calculating ~~the standard deviation~~ a standard deviation
6 of network queue wait time (σTw) = square root of
7 (utilization * (2 - utilization)) * (average message
8 service time / (1 - utilization)).

1 12. [Original] The method of claim 11, further comprising
2 the step of

determining $T_w = \text{utilization} * \text{average message service time} / (1 - \text{utilization})$.

13. [Currently amended] A method for evaluating ~~the discrete~~ a discrete utilization of a network, comprising the steps of

transmitting probative samples through said network ~~and time stamping probative samples;~~

time stamping said probative samples; and

responsive to said samples, calculating the average wait time and ~~the standard deviation~~ a standard deviation of average delay of said network.

14. [Original] The method of claim 13, said samples comprising one way echo packets.

15. [Original] The method of claim 13, said samples comprising two way echo packets.

16. [Currently amended] The method of claim 13 for deriving the discrete utilization of a network, further

3 comprising the steps of:

4 deriving said discrete utilization as ~~the ratio~~ a ratio
5 of ~~the wait~~ a wait time of said network to ~~the standard~~
6 ~~deviation~~ a standard deviation of the average queue
7 wait time.

1 17. [Original] The method of claim 16, further comprising
2 the steps of:

3 fine tuning said discrete utilization by averaging
4 dropped instances of said samples with successful
5 transmissions of said samples to derive a measure of
6 discrete utilization based upon a total set of said
7 probative samples.

1 18. [Currently amended] ~~System~~ A program storage device
2 readable by a machine, tangibly embodying a program of
3 instructions executable by a machine for evaluating a
4 network, comprising:

5 an apparent network speed analysis application module
6 for measuring average message delay through said
7 network[[];]], ~~determining the standard deviation a~~

8 standard deviation of said message delay[[;]]_L and
9 calculating ~~the discrete~~ a discrete utilization of said
10 network as ~~the ratio~~ a ratio of said average message
11 delay to said standard deviation; and

12 a service level and capacity planning routine module
13 for tuning said network.

1 19. [Currently amended] The ~~system~~ program storage device
2 of claim 18, said service level and capacity planning
3 routine module further comprising routines for calculating
4 change in network traffic before network response time
5 service level is compromised[[;]]_L determining additional
6 file load capacity of the network[[;]]_L and adjusting window
7 size for file transfer to fill remaining capacity.

1 20. [Currently amended] ~~System~~ A program storage device
2 readable by a machine, tangibly embodying a program of
3 instructions executable by a machine for evaluating a
4 network, comprising:

5 a first program module for measuring average message
6 delay through said network;

7 a second program module for determining ~~the standard~~
8 ~~deviation~~ a standard deviation of said message delay;
9 and

10 a third program module for calculating ~~the discrete~~ a
11 discrete utilization of said network as ~~the ratio~~ a
12 ratio of said average message delay to said standard
13 deviation.

1 21. [Currently amended] A program storage device readable
2 by a machine, tangibly embodying a program of instructions
3 executable by a machine to perform method steps for
4 evaluating a network, said method steps comprising:

5 measuring average message delay through said network;

6 determining ~~the standard deviation~~ a standard deviation
7 of said message delay; and

8 calculating ~~the discrete~~ a discrete utilization of said
9 network as ~~the ratio~~ a ratio of said average message
10 delay to said standard deviation.

1 22. [Currently amended] A program storage device readable

2 by a machine, tangibly embodying a program of instructions
3 executable by a machine to perform operations comprising
4 ~~computer program product or computer program element for~~
5 ~~performing the steps of:~~

6 measuring average message delay through said network;

7 ~~determining the standard deviation~~ a standard deviation
8 of said message delay; and

9 calculating ~~the discrete~~ a discrete utilization of said
10 network as ~~the ratio~~ a ratio of said average message
11 delay to said standard deviation.

1 23. [New] A method for evaluating a discrete utilization
2 of a network, comprising the steps of

3 transmitting probative samples through said network;

4 time stamping said probative samples;

5 responsive to said samples, calculating the average
6 wait time and a standard deviation of average delay of
7 said network; and

8 deriving said discrete utilization as a ratio of a wait
9 time of said network to a standard deviation of the
10 average wait time.

1 24. [New] The method of claim 23, further comprising the
2 steps of:

3 fine tuning said discrete utilization by averaging
4 dropped instances of said samples with successful
5 transmissions of said samples to derive a measure of
6 discrete utilization based upon a total set of said
7 probative samples.

1 25. [New] The program storage device of claim 21, said
2 steps further comprising:

3 factoring instances of dropped messages as full
4 utilization in calculating said discrete utilization.

1 26. [New] A program storage device readable by a machine,
2 tangibly embodying a program of instructions executable by a
3 machine to perform operations for evaluating a network, said
4 operations comprising:

5 communicating of a plurality of long packets and short
6 packets through said network;

7 determining a best time of said long packets;

8 determining a best time of said short packets;

9 responsive to of said long and short packets and their
10 respective best times, determining Network Queue Wait
11 Time (Tw) and a standard deviation of Network Queue
12 Wait Time, (σTw);

13 responsive to said Tw and σTw , calculating a discrete
14 utilization (p) of said network.

1 27. [New] The program storage device of claim 3, wherein
2 said Tw, σTw and p are related by the expression:

3
4
$$Tw / \sigma Tw = p / \sqrt{(p * (2 - p))} .$$

1 28. [New] A program storage device readable by a machine,
2 tangibly embodying a program of instructions executable by a
3 machine to perform operations for evaluating a network, said

4 operations comprising:

5 sending test packets across said network;

6 based upon number of test packets transmitted, number
7 of bytes per test packet, send and receive timestamps
8 of each test packet, and number of test packets lost in
9 transmission, deducing a capacity of said network, its
10 latency, and a current utilization of said capacity.

1 29. [New] The program storage device of claim 28, said
2 operations further comprising:

3 calculating network hop count as a measure a minimum
4 number of hops of network bottleneck hop speed that
5 could be in the network; and

6 responsive to said network hop count, determining the
7 minimum network discrete utilization.

1 30. [New] The program storage device of claim 29, said
2 operations further comprising:

3 responsive to said test packets, determining as a

4 maximum network discrete utilization a number of
5 messages queued per network hop count; and

6 responsive to said minimum network discrete utilization
7 and said maximum network discrete utilization,
8 determining a best approximation of end to end discrete
9 utilization.

1 31. [New] The program storage device of claim 30, said
2 operations further comprising:

3 adjusting said end to end discrete utilization for
4 dropped test packets.

1 32. [New] The program storage device of claim 30, said
2 best approximation of end to end discrete utilization being
3 an average of said minimum network discrete utilization and
4 said maximum network discrete utilization.

1 33. [New] The program storage device of claim 30, said
2 operations further comprising:

3 adjusting said best approximation of end to end
4 discrete utilization by selectively weighting said

5 minimum network discrete utilization or said maximum
6 network discrete utilization responsive to network
7 streaming utilization.

1 34. [New] A program storage device readable by a machine,
2 tangibly embodying a program of instructions executable by a
3 machine to perform operations for evaluating network
4 characteristics, comprising the steps of

5 determining network discrete utilization;

6 determining average message service time; and

7 calculating a standard deviation of network queue wait
8 time (σTw) = square root of (utilization * (2-
9 utilization)) * (average message service time / (1 -
10 utilization)).

1 35. [New] The program storage device of claim 34, said
2 operations further comprising:

3 determining $Tw = \text{utilization} * \text{average message service}$
4 time / (1 - utilization).